

## ABSTRACT

The present invention is a transient vibration time history testing calibration system and method that assists testing equipment reproduce predefined earthquake synthesized waveforms within acceptable parameters. Adjustments are made to forces applied to the equipment under test (EUT) so that the acceleration of the EUT corresponds to a predetermined acceleration time history waveform. Information associated with the acceleration time history waveform is loaded in a controller which produces shaker drive signals that control movements of a shaker. Two waveform tests are run at an attenuated value (e.g., -3 dB) of a full level test on a dummy load. The acceleration of the dummy load is measured and adjustments are made to update the drive signals if the TRS is not within acceptable tolerances of the RRS. The adjustments are projected to provide shaker drive signals that shake the EUT within acceptable ranges of a RRS. Then a waveform test is run at full strength with the dummy load and the dummy load movements are measured. If the projected TRS for the equipment under test is not within acceptable tolerances of the RRS further adjustments calculated to bring the TRS within acceptable range of the RRS are made to the shaker drive signals. A waveform test is then performed on the EUT at an attenuated value and if the TRS is not projected to be within acceptable tolerances of an RRS for a full strength test, more adjustments are made to the shaker drive signals.